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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/399,502	09/20/1999	GARY D. MARTIN	AMCC3000	2333

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EXAMINER

VAUGHAN, MICHAEL R

ART UNIT	PAPER NUMBER
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2131

DATE MAILED: 01/23/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/399,502

Applicant(s)

MARTIN, GARY D.

Examiner

Michael R Vaughan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Detailed Action

Response to Amendment

1. The proposed amendment to the specification has been entered and the objection has been withdrawn.
2. The proposed amendment to the drawings has been entered and the objection has been withdrawn.
3. The proposed amendment to the claim 10 has been entered and the objection has been withdrawn.

Response to Arguments

Applicant's arguments, see Remarks, page 9-10, filed 10-28-03, with respect to the rejection(s) of claim(s) 1-20 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art.

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-7, 9, 10, 13-16, 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Nohara et al (USP 5,881,154).

As per claim 1, Nohara et al teach a frame generator having a first input to accept information to be transmitted, said frame generator organizing the information into frames including both the information and system overhead, said frame generator having an output to provide frames of information to be transmitted; and a self-synchronous scrambling circuit having an input operatively connected to the output of said frame generator, said scrambling circuit scrambling the frame input in a first predetermined encryption pattern and providing an output of encrypted frames, whereby the information to be transmitted is scrambled after it is organized into frames (column 1, lines 25-30, column 2, lines 50-55, and Figs 1 and 4).

As per claim 2, Nohara et al teach a data generator having an output operatively connected to the input of said frame generator to provide information to be transmitted (Fig 1).

As per claim 3, Nohara et al teach a self-synchronous de-scrambling circuit having a first input operatively connected to the output of said scrambling circuit, said de- scrambling circuit decrypting the received encrypted frames in accordance with the first encryption pattern to provide received frames of information at an output (column 2, lines 55-63).

As per claim 4, Nohara et al teach a frame terminal having an input operatively connected to the output of said de-scrambling circuit, said frame terminal removing the overhead information associated with each frame to provide the transmitted information, whereby the transmitted information is recovered (column 2, lines 55-63).

As per claim 5, Nohara et al inherently teach an information terminal having a first input operatively connected to the output of said frame terminal to receive the transmitted information because the data that is sent out must flow to a source that is to perform some action with the recovered data (column 2, line 63).

As per claim 6, Nohara et al teach frame generator divides each frame into time multiplexed sections including a first frame period when information is included in the frame, and a second frame period when overhead is included in the frame, said frame generator having a second output to provide timing information regarding the occurrence of the first and second frame periods, and in which said scrambler having a second input operatively connected to second output of said frame generator, said

scrambler selectively scrambling frame sections in response to the received frame period timing information, whereby frame sections are selectively encrypted for transmission (column 3, lines 55-65 and Figs 4 and 6).

As per claim 7, Nohara et al teach said scrambler encrypts only the information section of each frame in response to timing signals received from the second output of said frame generator, whereby the overhead data is not scrambled (Fig 6).

As per claim 9, Nohara et al teach frame terminal divides each received frame into time multiplexed sections including a first frame period when information is included in the frame and a second frame period when overhead is included in the frame, said frame terminal having a second output to provide timing information regarding the occurrence of the first and second frame periods, and in which said descrambler has a second input operatively connected to second output of the frame terminal, said de-scrambler selectively de-scrambling frame sections in response to the received frame period timing information, whereby frame sections are selectively decrypted (column 3, lines 55-65 and Figs 4 and 6).

As per claim 10, Nohara et al teach said de-scrambler decrypts_only the information section of each frame in response to timing signals received from the second output of said frame terminal, whereby the overhead data is riot de-scrambled (column 3, lines 55-65 and Figs 8 and 6).

As per claim 13, Nohara et al teach the steps of:

- a) accepting information to be transmitted (Fig 1, element 10);
- b) organizing the information into frames including time multiplexed sections of information and sections of overhead (Fig 1, element 11);
- c) self-synchronously scrambling the frames in a first predetermined encryption pattern (Fig 1, element 14); and
- d) transmitting the scrambled frames, whereby the information and overhead data are both encrypted for added security (Fig 1).

As per claim 14, Nohara et al teach the steps of:

- e) receiving the scrambled frames (column 2, lines 56);
- f) self-synchronously de-scrambling the frames in accordance with the first encryption pattern (column 2, line 60); and
- g) recovering the information from the frames (column 2, line 64).

As per claim 15, Nohara et al teach Step b) includes generating timing data to signal the occurrence of the information and overhead sections of the frames, and in which Step c) includes scrambling the frames in response the timing data signals of Step b) (column 1, lines 35-40).

As per claim 16, Nohara et al teach Step g) includes generating timing data to signal the occurrence of the information and overhead sections of the received frames, and in which Step f) includes descrambling the received frames in response the timing data signals of Step g) (column 6, 55-60).

As per claim 18, Nohara et al teach scrambling only the information section of each frame (column 3, 49-53).

As per claim 19, Nohara et al teach a means for generating information; a means for assembling the information into frames that include both the information and system overhead for transmission; and a means for self-synchronously and continuously scrambling the frames from said assembly means, subsequent to the assembly of the frames, whereby information and overhead are encrypted for transmission (Fig 1).

As per claim 20, Nohara et al teach a self synchronous scrambling means includes control inputs with timing data that are synchronous to at least one overhead bit in the frame to disable said scrambling means, whereby the scrambling operation becomes modifiable (column 1, lines 32-44).

Claim Rejections - 35 USC § 103

5. Claims 8, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nohara et al in view of White (USP 5,442,703) in view of Kim et al (USP 5,303,303).

As per claims 8 and 17, Nohara et al does not teach encrypting the overhead bits with a second predetermined encrypted pattern. White teaches that the header and trailer (overhead) may be encrypted separately from the information-carrying portion (data) (column 1, lines 43-45). It is more secure to use multiple encryption processes. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of White within the system of Nohara et al

because encrypting the header information increases the burden of a rogue to gain information about the transferred data.

Kim et al teaches that the use of multiple encryption keys (patterns) is desirable in communication (column 1 lines 23-26). It is obvious that if one was to encrypt the overhead separately from the data, that he/she should use a different encrypt pattern for each. Otherwise, both data and overhead could have simply been encrypted together with the same encryption pattern. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teaching to Kim et al within the system of Nohara et al because using two different encryption schemes greatly improves the security of the system.

With respect to claim 11, the examiner supplies the above-mentioned rationale for the motivation in the rejection of claim 8. It is obvious that claim 11 is decrypting, or undoing, the matter that was encrypted in claim 8. Therefore, the previous motivation of claim 8 applies to the rejection of claim 11.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nohara et al.

As per claim 12, Nohara et al does not explicitly teach that said frame generator accepts packets of HDLC information, in which said frame generator organizes the


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information and overhead in frames according to SONET protocols, in which said frame terminal accepts information organized into frames according to SONET protocols, and in which said frame terminal supplies packets of HDLC information. However, Nohara et al does teach that their system is for the use of transmitting ATM cells. It is obvious to one of ordinary skill in the art that ATM cells often travel over SONET. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Nohara et al and apply their teachings of frame transferring to SONET protocols.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael R Vaughan whose telephone number is 703-305-0354. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.


EMMANUEL L. MOISE
PRIMARY EXAMINER
4/11 2/36

Michael R Vaughan
Examiner
Art Unit 2131

MV